



IMAGE SERVICES

Guidelines for Installing and Updating Site-Controlled Oracle Software on UNIX Servers

**IS 4.0 HP Itanium Edition
and IS 4.0 SP5**

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Guidelines for Installing and Updating Oracle9i RDBMS Software on UNIX Servers

This document provides guidelines for installing and updating Oracle9i software on AIX/6000, HP-UX, and Sun SPARC Solaris servers.

Server Types

Perform the procedures in this document on these Image Services servers:

Root/Index - (Multi-server installation)

Root/Index/Storage Library - (Combined or Entry server install)

Application - (Running WorkFlo Queue Services,
SQL Services or VW Services)

The **Database Administrator** is responsible for installing and updating the Oracle RDBMS software. Because the FileNet Image Services software requires that certain Oracle products be installed and that certain tablespaces be defined, the DBA needs to follow these guidelines to ensure compatibility with Image Services 4.0.0. Also:

- FileNet Image Services 4.0.0 is compatible with both dictionary and locally managed Oracle tablespaces.
- Oracle9i enables you to use either rollback segments or undo tablespace.

Supported Oracle9i RDBMS Software

The following versions of Oracle9i are supported:

- Oracle9i Database Release 2 Enterprise/Standard Edition for AIX-Based 5L Systems (64-bit)
- Oracle9i Database Release 2 Enterprise/Standard Edition for HP-UX (64-bit)
- Oracle9i Database Release 2 Enterprise/Standard Edition for HP-UX Itanium (64-bit)
- Oracle9i Database Release 2 Enterprise/Standard Edition for Sun SPARC Solaris (32-bit)*
- Oracle9i Database Release 2 Enterprise Edition for Sun SPARC Solaris (64-bit)

* 32-bit software can be installed on a 64-bit operating system, but 64-bit software cannot be installed on a 32-bit operating system.

Required Oracle Patches

Also required are:

- Oracle Patch Set 4 (9.2.0.4) or higher

The patch sets are available for download from the Oracle MetaLink Web site.

Undo Segments and Rollback Segments

In the past, all FileNet supported versions of Oracle used rollback segments to recreate the "before" image. Oracle9i also uses rollback segments but also introduces undo segments.

You must choose either rollback or undo segments. You cannot use both at the same time.

To use undo segments, all data is placed in an undo tablespace. Performance can be increased by using undo segments because the undo tablespace is locally managed.

The rollback data is managed via system-managed undo (SMU).

Image Services supports the undo feature only with site-controlled Oracle databases. FileNet-controlled databases will continue to use rollback segments.

Refer to Oracle documentation for further details.

Disk Space Requirements

The Oracle **Server** software requires a **minimum** of:

	Total Space	Free Space
AIX/6000	4.0 GB	4.0 GB
HP-UX	4.0 GB	4.0 GB
Solaris	3.0 GB	3.0 GB

The total space required for Oracle depends on which Oracle products you're installing. (Refer to Oracle documentation for information about the disk space requirements.)

Oracle9i **Client** software requires **1.6 GB** of available disk space on the FileNet Image Services server.

Oracle Password Complexity Verification

Image Services does not support Oracle Password Complexity Verification during the installation process. If you plan to use this Oracle feature, make sure it is turned off for the IS run-time user (f_sw or alias) before you install the IS 4.0 software.

After the installation of IS 4.0 is complete and the f_sw (or alias) user password has been changed via the **set_f_maint_pw** utility, Oracle Password Complexity Verification can be turned on.

Installing on a Local Server

To configure Oracle on the same server that will also host Image Services, see [Chapter 2, “Installation Guidelines for Servers with Local Oracle Databases,” on page 11](#) for further information.

Installing on a Remote Server

To configure a dedicated remote Oracle server and install Oracle client software on the Image Services server, see [Chapter 3, “Installation Guidelines for Remote Oracle Database Configurations,” on page 26](#) for further information.

Updating a Local or Remote Server

To update an existing Image Services system with Oracle9i, or to update a remote Oracle database server to Oracle9i, see [Chapter 4, “Update Guidelines for UNIX Servers,” on page 47](#) for further information.

Installation Guidelines for Servers with Local Oracle Databases

This chapter describes how to configure a Oracle database on the same server where the FileNet Image Services software will reside.

Before You Begin

Be sure the server has the appropriate version of the operating system:

- AIX 5L (5.1, 5.2, or 5.3)
- HP-UX 11i (B.11.11) and HP-UX 11i v2 (B.11.23)
- Solaris 8 or Solaris 9

Create an Oracle User and Group

Create a <dba group> and <dba user> for RDBMS administration using the appropriate system tool for your platform:

AIX**SMIT** (System Management Interface Tool)**HPUX****SAM** (System Administration Manager)**SOL****SMC** (Solaris Management Console)

Be sure to add the <dba user> to the **fnsur** group, if it exists already. And be sure to add the **fnsur** user to the <dba group>.

Group Name	Members	Group Description
fnsur	fnsur, root, <dba user>	FileNet User group. Members can operate any FileNet software (including COLD). All operators and administrators must belong to this group.
<dba group>	fnsur, <dba user>	Database Administration group.

Note The <dba group> name **dba** and the <dba user> name **oracle** are suggested but not required.

Prepare a Location for the Oracle Server Software

Create a file system for the Oracle Server software. The Oracle Server software requires a **minimum** of:

	Total Space	Free Space
AIX/6000	4.0 GB	4.0 GB
HP-UX	4.0 GB	4.0 GB
Solaris	3.0 GB	3.0 GB

The total space required for Oracle depends on which Oracle products you're installing. (Refer to Oracle documentation for information about the disk space requirements.)

The volume names, mount points, user and group names in these tables are only examples. You can name them anything you wish.

AIX/6000

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 (Server)	/usr/ora/920	4.0 GB		oracle	dba	755
arch920 **	/usr/ora/ arch920	100 MB		oracle	dba	755
oratmp ***	/oratmp	400 MB		oracle	dba	755

HP-UX

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 (Server)	/usr/ora/920	4.0 GB		oracle	dba	755
arch920 **	/usr/ora/ arch920	100 MB		oracle	dba	755
oratmp ***	/oratmp	400 MB		oracle	dba	755

Solaris

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 (Server)	/usr/ora/920	3000m		oracle	dba	755
arch920 **	/usr/ora/ arch920	100m		oracle	dba	755
oratmp ***	/oratmp	400m		oracle	dba	755

** The minimum size for arch920 is arbitrary. If archive logging will be used, the size of this file system will depend on the amount of database activity and the frequency of backups.

***The oratmp file system is used for temporary space during the Oracle software installation. It can be removed at the end of this procedure.

Verify Free Space for Oracle Installer and Inventory Files

Oracle9i needs **50 MB** of space in the directory above ORACLE_HOME for the Oracle Installer and Inventory files.

Enter the following command:

df -k

The display looks similar to this:

Filesystem	1024-blocks	Free	%Used	Iused	%Iused	Mounted on
/dev/hd4	8192	2864	66%	1084	27%	/
/dev/hd2	393216	1428	100%	16735	18%	/usr
/dev/hd9var	4096	2312	44%	189	19%	/var
/dev/hd3	106496	103056	4%	31	1%	/tmp
/dev/hd1	4096	3916	5%	24	3%	/home

Check the Free column. If you need to add more space, do this:

For AIX/6000 servers:

In SMIT, choose System Storage Management (Physical & Logical Storage) → File Systems → Add/Change/Show/Delete File Systems → Journaled File Systems → Change/Show Characteristics of a Journaled File System. Select the /usr file system. Enter the required number of 512K blocks that will increase the /usr free space to 50 MB and press the OK button. (or the Return key).

For HP-UX servers:

The server needs to be in single-user mode to increase the size of /usr, so reboot the server by entering:

shutdown -r 0

- 1 During the boot sequence you should see a prompt similar to this:

To override, press any key within 10 seconds.

Press any key.

- 2 Answer **Y** for Yes to the following prompts:

Boot from primary? **Y**

Interact with IPL? **Y**

At the **ISL** prompt, boot to single-user mode: **HPUX - is**

- 3 After a minute or so, press **Enter** to display the system prompt. (The server may still appear to be processing.)
- 4 Extend the logical volume by entering:

lvextend -L 60 /dev/vg00/lvol6

where:

60 is the new total size of the logical volume in MB.

/dev/vg00/lvol6 is the logical volume path shown on the bdf display.

Note Be sure to specify the appropriate volume group and lvol for the volume you want to expand.

- 5 Extend the file system by entering:

```
extendfs /dev/vg00/rlvol6
```

where:

/dev/vg00/rlvol6 is the raw logical volume path.

- 6 After extending the logical volume and file system, mount it by entering:

```
sync  
mount /usr
```

- 7 Display the new file system space information by entering:

```
bdf
```

Make sure that logical volume you expanded now has enough space to continue the System Check.

- 8 Reboot the server normally to return to multi-user mode.

```
shutdown -r 0
```

Note If file systems are not shut down cleanly, you may need to **fsck** the logical volume.

For Solaris servers:

Use the Volume Manager (such as Veritas) to increase the size of the appropriate volume(s).

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 (Server)	/usr/ora/920	3000m		oracle	dba	755
arch920	/usr/ora/ arch920	100m		oracle	dba	755
oratmp	/oratmp	400m		oracle	dba	755

Set Oracle Directory Ownership and Permissions

As **root** user, change the ownership and access permissions for the Oracle directories. Verify that the ownership is set to the Oracle user and the Database Administration group.

Note On Solaris servers, use the Volume Manager to verify that the user and group ownership and the access permissions (mode) are set appropriately as shown in the table in the previous subsection.

Verify Operating System Patches

After installing the appropriate operating system software, go to the FileNet Web site <http://www.css.filenet.com> and log into Customer Service & Support. Click on:

Product Tech Info
Image Manager
Image Services
Compatibility & Dependency
IS 4.0.x

Select your operating system from the list, and review the patch recommendations and requirements.

Create Symbolic Links (HP-UX 11i v1 PA-RISC Only)

Due to a known HP bug (Doc. id: KBRC00003627), the default HP-UX 11i v1 (64-bit) operating system installation does not create a few required X library symbolic links. These links must be created manually before starting Oracle9i installation.

As **root** user, enter the following commands to create the required links:

```
cd /usr/lib
ln -s /usr/lib/libX11.3 libX11.sl
ln -s /usr/lib/libXIE.2 libXIE.sl
ln -s /usr/lib/libXext.3 libXext.sl
ln -s /usr/lib/libXhp11.3 libXhp11.sl
ln -s /usr/lib/libXi.3 libXi.sl
ln -s /usr/lib/libXm.4 libXm.sl
ln -s /usr/lib/libXp.2 libXp.sl
ln -s /usr/lib/libXt.3 libXt.sl
ln -s /usr/lib/libXtst.2 libXtst.sl
```

Install Oracle9i Server Software

Make sure that, at the very least, the Oracle products checked below are installed.

Tip Each listed item has an associated icon and checkbox. An icon with a plus sign indicates there are additional subordinate items. You can list those additional items by clicking on the icon.

Placing a **check** in the checkbox indicates that you have selected the

item for installation. Products that are **not checked** in the list below are not required by FileNet Image Services.

The following products should be selected:

✓ Oracle 9i Database 9.2.0.1.0

✓ Oracle 9i 9.2.0.1.0

Enterprise Edition Options 9.2.0.1.0

Oracle Advanced Security 9.2.0.0.0

Oracle Partitioning 9.2.0.1.0

Oracle Spatial 9.2.0.1.0

Legato Networker Single Server 6.1.0.0.0

Oracle Label Security 9.2.0.1.0

Oracle OLAP 9.2.0.1.0

Oracle Data Mining 9.2.0.1.0

✓ Oracle Net Services 9.2.0.1.0

✓ Oracle Net Listener 9.2.0.1.0

Oracle Connection Manager 9.2.0.1.0

Oracle Names 9.2.0.1.0

Oracle Enterprise Manager Products 9.2.0.1.0

✓ Oracle9i Development Kit 9.2.0.1.0

Oracle C++ Call Interface 9.2.0.1.0

✓ Oracle Call Interface (OCI) 9.2.0.1.0

Oracle Programmer 9.2.0.1.0

Oracle XML Developer's Kit 9.2.0.0.0

(To remove the check from the Oracle XML Developer's Kit option, you need to remove the check from the Oracle HTTP Server option first.)

Oracle HTTP Server 9.2.0.1.0

Oracle Transparent Gateways 9.2.0.1.0

iSQL*Plus 9.2.0.1.0

Oracle JDBC/OCI Interfaces 9.2.0.1.0

Create the Oracle Database

To create your new Oracle database, refer to Oracle documentation for complete information. Be sure the database is large enough to hold the two (or possibly three) tablespaces for FileNet use that you'll be configuring in the next section.

Create the Oracle data dictionary by entering:

```
sqlplus "/ as sysdba"  
SQL>@$ORACLE_HOME/rdbms/admin/catalog.sql  
SQL>@$ORACLE_HOME/rdbms/admin/catproc.sql
```

Install the Appropriate Patch Set and Interim Patch

After you've installed the Oracle 9.2.0.1 software, you need to install:

- Oracle Patch Set 4 (9.2.0.4) or later

The patch sets are available for download from the Oracle MetaLink Web site.

Create Tablespaces for Oracle Objects

FileNet Image Services supports both local and dictionary managed tablespaces.

Two tablespaces are required for FileNet Image Service use; a third tablespace is optional.

FileNet Recommended Tablespace Names *	Minimum Tablespace Size (MB)
fnsys_ts	200
fntmp_ts	400

* **fnsys_ts** is the name of the dedicated FileNet default tablespace.
fntmp_ts is the name of the dedicated FileNet temporary tablespace.

You can name the tablespaces anything you wish, but their sizes should be at least as large as shown in the table. FileNet's SCoUT (System Capacity Planning Tool) can help you determine the actual size needed for your application. Check with your FileNet representative for details.

Tip If you have a large amount of free disk space, you may want to consider specifying the **autoextend** option, which allows the tablespaces to expand automatically as required.

Set Oracle Environment Variables

Make sure the following environment variables are set correctly for the Oracle user, the **fns** user, and optionally the **root** user:

```
ORACLE_HOME
TWO_TASK
NLS_LANG (an 8-bit character set is recommended)
ORA_NLS33
```

To change these environment settings, you need to edit **both** the user's .profile **and** .cshrc file.

a In the Bourne or Korn shell, edit the .profile file.

```
export ORACLE_HOME=<full path to Oracle software>
export ORACLE_SID=<Oracle Instance Identifier>
export NLS_LANG=AMERICAN_AMERICA.WE8ISO8859P1
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data
```

b In the C shell, edit the .cshrc file.

```
setenv ORACLE_HOME <full path to Oracle software>
setenv ORACLE_SID <Oracle Instance Identifier>
setenv NLS_LANG AMERICAN_AMERICA.WE8ISO8859P1
setenv ORA_NLS33 $ORACLE_HOME/ocommon/nls/admin/data
```

CAUTION

The NLS_LANG variable setting must match the setting used when the database was created.

If you need to check the character set used when the database was created, continue with the next step. Otherwise, skip to **[“Report to Sys Admin and FileNet TC” on page 24.](#)**

Verify Oracle NLS Parameters

You can check the Oracle NLS parameters by entering as the Oracle user:

```
sqlplus "/ as sysdba"
SQL> select * from nls_database_parameters;
```

The display looks similar to this:

PARAMETER	VALUE
NLS_LANGUAGE	AMERICAN
NLS_TERRITORY	AMERICA
NLS_CURRENCY	\$
NLS_ISO_CURRENCY	AMERICA
NLS_NUMERIC_CHARACTERS	.,
NLS_DATE_FORMAT	DD-MON-YY
NLS_DATE_LANGUAGE	AMERICAN
NLS_CHARACTERSET	WE8ISO8859P1
NLS_SORT	BINARY
NLS_CALENDAR	GREGORIAN
NLS_RDBMS_VERSION	9.2.0.4.0
11 rows selected	

Note

In this example, the NLS_CHARACTERSET is set to WE8ISO8859P1 so it matches the environment setting. If the environment setting does **not** match the NLS setting in the database, the system will have issues with document security and may possibly have memory fault problems.

If this display had shown the NLS_CHARACTERSET to be US7ASCII, for example, then you would need to set the NLS_LANG environment variable to US7ASCII.

For example: export NLS_LANG=AMERICAN_AMERICA.US7ASCII

or

```
setenv NLS_LANG AMERICAN_AMERICA.US7ASCII
```

Report to Sys Admin and FileNet TC

Please return the following information to the System Administrator and the FileNet Technical Consultant or ValueNet Partner.

Oracle Variables

Please return the following information to the System Administrator and the FileNet Technical Consultant or ValueNET Partner.

\$ORACLE_HOME: _____
(Oracle software directory) (/usr/ora/920, for example)

\$ORACLE_SID: _____
(instance identifier) (IDB, for example)

<Oracle User ID>: _____
(the Oracle administrator) (oracle, for example)

<DBA Group>: _____
(for database administration) (dba, for example)

The FileNet user **fns** must be made a member of this group.

Tablespace Names and Sizes

FileNet Recommended Tablespace Names	Tablespace Names You Actually Assign	Minimum Tablespace Size (MB)	Tablespace Size (MB) You Actually Create
fnsys_ts		200	
fntmp_ts		400	

Continue the Image Services Installation

After the Oracle software has been successfully installed, the FileNet Technical Consultant or ValueNet Partner can continue with the Image Services installation in *Chapter 3, "Installing the FileNet Image Services Software."* of the *Image Services Installation and Configuration Procedures* for your platform.

3

Installation Guidelines for Remote Oracle Database Configurations

This chapter describes how to configure a remote Oracle database server and then configure the FileNet Image Services server as an Oracle client.

Before You Begin

The FileNet server and the Oracle server must be running one of these operating systems:

- AIX 5L (5.1, 5.2, or 5.3)
- HP-UX 11i and HP-UX 11i v2
- Solaris 8 or Solaris 9

Prepare Locations for the Oracle Server and Client Software

On the Oracle database server, create a file system for the Oracle Server software. The Oracle Server software requires a **minimum** of: The Oracle9i **Server** software requires a **minimum** of:

4.0 GB of free space on AIX/6000 servers

4.0 GB of free space on HP-UX servers

3.0 GB of free space on Solaris servers

On the FileNet Image Services server, the Oracle9i **Client** software requires a minimum of **1.6 GB** of available disk space.

The total space required for Oracle depends on which Oracle products you're installing. (Refer to Oracle documentation for information about the disk space requirements.)

The volume names, mount points, user and group names in these tables are only examples. You can name them anything you wish.

AIX/6000

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 * (Server) (Client)	/usr/ora/920	4.0 GB 1.6 GB		oracle	dba	755
arch920 **	/usr/ora/ arch920	100 MB		oracle	dba	755
oratmp ***	/oratmp	400 MB		oracle	dba	755

HP-UX

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 * (Server) (Client)	/usr/ora/920	4.0 GB 1.6 GB		oracle	dba	755
arch920 **	/usr/ora/ arch920	100 MB		oracle	dba	755
oratmp ***	/oratmp	400 MB		oracle	dba	755

Solaris

Volume Name	Mount Point	Minimum Size	Actual Size You Create	User Name	Group Name	Mode
ora920 * (Server) (Client)	/usr/ora/920	3000m 1600m		oracle	dba	755
arch920 **	/usr/ora/ arch920	100m		oracle	dba	755
oratmp ***	/oratmp	400m		oracle	dba	755

* If Oracle Client software is going to be installed on the FileNet server for a remote Oracle instance, the minimum size is 1600m (1.6 GB).

** The minimum size for arch920 is arbitrary. If archive logging will be used, the size of this file system will depend on the amount of database activity and the frequency of backups.

***The oratmp file system is used for temporary space during the Oracle software installation. It can be removed at the end of this procedure.

Strategy

Before making any modifications to the FileNet Image Services server, you'll want to get the new Oracle server up and running. This involves installing the same version of Oracle software that you plan to install on the FileNet Image Services server, and configuring the Database Administration group and Oracle user to be the same as on the FileNet Image Services server.

After installing the Oracle Server software on the new Oracle server, you must install the Oracle Client software on the FileNet server.

- To configure a **remote Oracle server** and a **FileNet Image Services Root/Index** server, continue with the following section, [“Configure the New Oracle Server” on page 29](#).
- To add a FileNet Image Services **Application Server** to the configuration, skip to the section, [“Configure the FileNet Image Services Server” on page 38](#).

Configure the New Oracle Server

After the new server has been set up with the appropriate version of the UNIX operating system and has been connected to the network, you can begin the Oracle configuration.

Note The use of FileNet Enterprise Backup and Restore (EBR) to backup a remote Oracle server is not supported by FileNet.

Create Oracle Users and Group

Create an Oracle user and a Database Administrator group. They must be identical to the user and group you create on the FileNet Image Services server. Use the appropriate system tool for your platform:

AIX**SMIT** (System Management Interface Tool)**HPUX****SAM** (System Administration Manager)**SOL****SMC** (Solaris Management Console)

For convenience, you may want to make the name of the Oracle user (**oracle**, for example) and the name of the Database Administration group (**dba**, for example) the same on both the FileNet Image Services server and the Oracle Database server, although this is not required.

Verify Oracle Environment Variables

Check the following environment variables to make sure they're set appropriately:

```
ORACLE_HOME
ORACLE_SID
NLS_LANG (an 8-bit character set is recommended)
ORA_NLS33
```

If you need to change any of them, use commands similar to these:

- In the Bourne or Korn shell:

```
export ORACLE_HOME=<full path to Oracle software>
export ORACLE_SID=<Oracle Instance Identifier>
export NLS_LANG=AMERICAN_AMERICA.WE8ISO8859P1
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data
```

- In the C shell:

```
setenv ORACLE_HOME <full path to Oracle software>
setenv ORACLE_SID <Oracle Instance Identifier>
setenv NLS_LANG AMERICAN_AMERICA.WE8ISO8859P1
setenv ORA_NLS33 $ORACLE_HOME/ocommon/nls/admin/data
```

CAUTION

The NLS_LANG variable setting must match the setting used when the database was created.

Create a Directory for FileNet Use

To facilitate the installation of FileNet-specific patches and test scripts, create a directory named /fnsw/oracle. For example, as the Oracle user, enter:

```
mkdir -p /fnsw/oracle
```

(After the Image Services software has been installed on the FileNet server, you'll be asked to copy several scripts to this directory.)

Verify Operating System Patches

After installing the appropriate operating system software, go to the FileNet Web site <http://www.css.filenet.com> and log into Customer Service & Support. Click on:

Product Tech Info
Image Manager
Image Services
Compatibility & Dependency
IS 4.0.x

Select your operating system from the list, and review the patch recommendations and requirements.

Create Symbolic Links (HP-UX 11i v1 PA-RISC Only)

Due to a known HP bug (Doc. id: KBRC00003627), the default HP-UX 11i v1 (64-bit) operating system installation does not create a few required X library symbolic links. These links must be created manually before starting Oracle9i installation.

As **root** user, enter the following commands to create the required links:

```
cd /usr/lib
ln -s /usr/lib/libX11.3 libX11.sl
ln -s /usr/lib/libXIE.2 libXIE.sl
ln -s /usr/lib/libXext.3 libXext.sl
ln -s /usr/lib/libXhp11.3 libXhp11.sl
ln -s /usr/lib/libXi.3 libXi.sl
ln -s /usr/lib/libXm.4 libXm.sl
ln -s /usr/lib/libXp.2 libXp.sl
```

```
In -s /usr/lib/libXt.3 libXt.sl  
In -s /usr/lib/libXtst.2 libXtst.sl
```

Install Oracle9i Server Software

Make sure that, at the very least, the Oracle products checked below are installed.

Tip Each listed item has an associated icon and checkbox. An icon with a plus sign indicates there are additional subordinate items. You can list those additional items by clicking on the icon.

Placing a **check** in the checkbox indicates that you have selected the item for installation. Products that are **not checked** in the list below are not required by FileNet Image Services.

For example, if you're installing Oracle Enterprise software, the following products should be selected:

- ✓ Oracle 9i Database 9.2.0.1.0
 - ✓ Oracle 9i 9.2.0.1.0
 - Enterprise Edition Options 9.2.0.1.0
 - Oracle Advanced Security 9.2.0.0.0
 - Oracle Partitioning 9.2.0.1.0
 - Oracle Spatial 9.2.0.1.0
 - Legato Networker Single Server 6.1.0.0.0
 - Oracle Label Security 9.2.0.1.0
 - Oracle OLAP 9.2.0.1.0
 - Oracle Data Mining 9.2.0.1.0
- ✓ Oracle Net Services 9.2.0.1.0
 - ✓ Oracle Net Listener 9.2.0.1.0

Oracle Connection Manager 9.2.0.1.0

Oracle Names 9.2.0.1.0

Oracle Enterprise Manager Products 9.2.0.1.0

✓ Oracle9i Development Kit 9.2.0.1.0

Oracle C++ Call Interface 9.2.0.1.0

✓ Oracle Call Interface (OCI) 9.2.0.1.0

Oracle Programmer 9.2.0.1.0

Oracle XML Developer's Kit 9.2.0.0.0

(To remove the check from the Oracle XML Developer's Kit option, you need to remove the check from the Oracle HTTP Server option first.)

Oracle9i for UNIX Documentation 9.2.0.1.0

Oracle HTTP Server 9.2.0.1.0

Oracle Transparent Gateways 9.2.0.1.0

iSQL*Plus 9.2.0.1.0

Oracle JDBC/OCI Interfaces 9.2.0.1.0

Create the Oracle Database

To create your new Oracle database, refer to Oracle documentation for complete information. Be sure the database is large enough to hold the two (or possibly three) tablespaces for FileNet use that you'll be configuring in the next section.

Create the Oracle data dictionary by entering:

```
sqlplus "/ as sysdba"
```

```
SQL> @$ORACLE_HOME/rdbms/admin/catalog.sql
```

```
SQL> @$ORACLE_HOME/rdbms/admin/catproc.sql
```

Install the Appropriate Patch Set and Interim Patch

After you've installed the Oracle 9.2.0.1 software, you need to install:

- Oracle Patch Set 4 (9.2.0.4) or later

The patch sets are available for download from the Oracle MetaLink Web site.

Create Tablespaces for FileNet Objects

FileNet Image Services supports both local and dictionary managed tablespaces.

A minimum of two tablespaces are required for FileNet Image Service use; a third tablespace is optional.

FileNet Recommended Tablespace Names *	Minimum Tablespace Size (MB)
fnsys_ts	200
fntmp_ts	400

* **fnsys_ts** is the name of the dedicated FileNet default tablespace.
fntmp_ts is the name of the dedicated FileNet temporary tablespace.

You can name the tablespaces anything you wish, but their sizes should be at least as large as shown in the table. FileNet's SCouT (System Capacity Planning Tool) can help you determine the actual size needed for your application. Check with your FileNet representative for details.

Tip If you have a large amount of free disk space, you may want to consider specifying the **autoextend** option, which allows the tablespaces to expand automatically as required.

Configure and Test Oracle Networking (TCP/IP)

- 1 To set up Oracle networking, two files need to be created or updated on the Oracle server.

As the Oracle user, change to the **\$ORACLE_HOME/network/admin** directory and update these files:

- tnsnames.ora
- listener.ora

FileNET provides samples of these two files:

The tnsnames.ora File

```
# TNSNAMES.ORA Network Configuration File
# Oracle Server and Client Server

<Same name as the GLOBAL_DBNAME in the Listener.ora file> =
  for example: Michigan_IDB.filenet.com
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = <Oracle server name or IP
address>)(PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = <Same GLOBAL_DBNAME as in the Listener.ora file>)
    )
  )
```

The listener.ora File

```
# LISTENER.ORA Network Configuration File
# Oracle Server only

LISTENER =
  (DESCRIPTION_LIST =
    (DESCRIPTION =
      (ADDRESS_LIST =
        (ADDRESS = (PROTOCOL = TCP)(HOST = <Oracle server name or IP
address>)(PORT = 1521))
      )
    )
  )

SID_LIST_LISTENER =
  (SID_LIST =
    (SID_DESC =
      (GLOBAL_DBNAME = <ServerName_<oracleSID>.filenet.com> )
      Example: Michigan_IDB.filenet.com
      (ORACLE_HOME = <Oracle Server software location> )
      FileNet default: /usr/ora/920
      (SID_NAME = <the SID you named your database instance> )
      FileNet default: IDB
    )
  )
)
```

2 Start the listener process by entering:

```
lsnrctl
LSNRCTL> start
```

- 3 Execute the Oracle loopback test on the Oracle server. Verify that the internal Oracle networking is active and functional by entering a sqlplus command in this format:

```
sqlplus <user>/<password>@<GLOBAL_DBNAME from  
tnsnames.ora file>
```

For example, you might enter:

```
sqlplus sys/<sys_password>@Michigan_IDB.world
```

If there are no errors, Oracle networking is working successfully. Exit from sqlplus.

Configure the FileNet Image Services Server

The remote Oracle server has been successfully configured, and now you're ready to configure the FileNet Image Services server.

You can use the procedures in this section to configure:

- Either an Image Services Combined server or Root/Index server,
- Or an Image Services Application Server with WorkFlo Queue Services, SQL Services, or VWServices.

Note Be sure to configure the Combined or Root/Index server first.

When adding an Application server to the configuration, use the **same** ORACLE_SID (**IDB**, for example) and ORACLE_UID (**oracle**, for example) as the Combined or Root/Index server.

Set Oracle Environment Variables

Make sure the following environment variables are set correctly for the Oracle user, the **fns** user, and optionally the **root** user:

```
ORACLE_HOME  
TWO_TASK  
NLS_LANG (an 8-bit character set is recommended)  
ORA_NLS33
```

(The TWO_TASK variable is set to the <GLOBAL_DBNAME> set in the TNSNAMES.ORA and LISTENER.ORA files.)

Follow these guidelines:

Note If the **oracle** user's .profile and/or .cshrc file do not have any customized settings, you can run the **install_templates** command instead of directly modifying these files as described in the following steps.

To change these environment settings, you need to edit **both** the user's .profile **and** .cshrc file.

For example:

- a In the Bourne or Korn shell, edit the .profile file.

```
export ORACLE_HOME=/usr/ora/client_920
```

```
export TWO_TASK=<GLOBAL_DBNAME from  
tnsnames.ora file>
```

For example: Michigan_IDB.filenet.com

```
export NLS_LANG=AMERICAN_AMER-  
ICA.WE8ISO8859P1
```

```
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/ad-  
min/data
```

- b In the C shell, edit the .cshrc file.

```
setenv ORACLE_HOME /usr/ora/client_920
```

```
setenv TWO_TASK <GLOBAL_DBNAME from  
tnsnames.ora file>
```

For example: Michigan_IDB.filenet.com

```
setenv NLS_LANG AMERICAN_AMERICA.WE8ISO8859P1  
setenv ORA_NLS33 $ORACLE_HOME/ocommon/nls/ad-  
min/data
```

CAUTION The NLS_LANG variable setting must match the setting used when the database was created.

If you need to check the character set used when the database was created on the Oracle server, continue with the next step. Otherwise, skip to [“Prepare Location for Oracle9i Client Software” on page 42](#).

Verify Oracle NLS Parameters

On the **Oracle server**, you can check the Oracle NLS parameters by entering as the Oracle user:

```
sqlplus "/ as sysdba"  
SQL> select * from nls_database_parameters;
```


The display looks similar to this:

PARAMETER	VALUE
-----	-----
NLS_LANGUAGE	AMERICAN
NLS_TERRITORY	AMERICA
NLS_CURRENCY	\$
NLS_ISO_CURRENCY	AMERICA
NLS_NUMERIC_CHARACTERS	. ,
NLS_DATE_FORMAT	DD-MON-YY
NLS_DATE_LANGUAGE	AMERICAN
NLS_CHARACTERSET	WE8ISO8859P1
NLS_SORT	BINARY
NLS_CALENDAR	GREGORIAN
NLS_RDBMS_VERSION	9.2.0.4.0
11 rows selected	

Note In this example, the NLS_CHARACTERSET is set to WE8ISO8859P1 so it matches the environment setting. If the environment setting does **not** match the NLS setting in the database, the system will have issues with document security and may have memory fault problems.

If this display had shown the NLS_CHARACTERSET to be US7ASCII, for example, then you would need to set the NLS_LANG environment variable to US7ASCII.

For example:

```
export NLS_LANG=AMERICAN_AMERICA.US7ASCII
or
setenv NLS_LANG AMERICAN_AMERICA.US7ASCII
```

Prepare Location for Oracle9i Client Software

Create a file system for the Oracle Client software. The Oracle Client software requires a minimum of **1.6 GB**.

Set Oracle Software Directory Ownership and Permissions

As **root** user, change the ownership and access permissions for the Oracle software directory. Verify that the ownership is set to the Oracle user and the Database Administration group.

Install Oracle9i Client Software

Make sure that, at the very least, the Oracle products checked off on the list below are installed. Products that are **not checked** in the list below are not required by FileNet Image Services.

- ✓ Oracle 9i Client 9.2.0.1.0
 - Oracle Enterprise Manager Products 9.2.0.1.0
 - Enterprise Manager Client 9.2.0.1.0
 - Oracle Change Management Pack
 - Oracle Diagnostics Pack 9.2.0.1.0
 - Oracle Tuning Pack 9.2.0.1.0
 - Oracle Management Pack for Oracle Applications 9.2.0.1.0
 - Oracle Management Pack for Oracle Standard Edition 9.2.0.1.0
- ✓ Oracle Network Utilities 9.2.0.1.0
- ✓ Oracle Database Utilities 9.2.0.1.0
- ✓ SQL*Plus 9.2.0.1.0
 - Oracle JDBC/OCI Interfaces 9.2.0.1.0
 - Oracle Internet Directory Client 9.2.0.1.0
 - Oracle Programmer 9.2.0.1.0
 - Oracle XML Developers Kit 9.2.0.1.0
 - Oracle9i for UNIX Documentation 9.2.0.1.0

- ✓ Oracle Universal Installer 2.2.0.12.0
- Oracle Advanced Security 9.2.0.1.0

Note Oracle Patch Set 4 (9.2.0.4) is **not required** with Oracle Client.

Copy the tnsnames.ora file onto the FileNet Server

Copy the **tnsnames.ora** file from the **\$ORACLE_HOME/network/admin** directory on the Oracle server to the **\$ORACLE_HOME/network/admin** directory on the FileNet Image Services server.

This ensures that the two tnsnames.ora files are identical on both servers.

Note The tnsnames.ora file on the Oracle server may describe more than one listener process if more than one independent FileNet Image Services system is configured to access the same Oracle server.

The tnsnames.ora file on the Image Services server should describe only one listener process.

On an Application server, the tnsnames.ora file should be identical to the tnsnames.ora file on the Combined or Root/Index server. That is, it should describe only one listener process.

Test Oracle Networking on the FileNet Image Services Server

Oracle Networking has already been configured and tested on the Oracle server. Now you can test the Oracle Client's ability to access the database on the remote Oracle server by entering the following command:

```
tnsping <GLOBAL_DBNAME>
```

where <GLOBAL_DBNAME> is the global database name used in the tnsnames.ora and listener.ora files. For example: Michigan_IDB.world. This verifies that the tnsnames file on the IS server can communicate successfully with the listener.ora file on the Oracle server.

To verify that you can access the Oracle database from the Image Services server, enter a sqlplus command in the following format:

```
sqlplus <user/password>@<GLOBAL_DBNAME>
```

where the user and password are the ones the Database Administrator set up earlier. For example:

```
sqlplus system/manager@Michigan_IDB.filenet.com
```

You should now be logged on to the Oracle server with no errors.

Test the TWO_TASK Environment Setting

To verify the TWO_TASK environment setting, enter a sqlplus command in the following format:

```
sqlplus <user/password>
```

For example:

```
sqlplus system/manager
```

You should now be logged onto the Oracle database server via Oracle networking and the TWO_TASK environment setting, as will the Image Services software.

Exit from sqlplus.

Report to Sys Admin and FileNet TC

The new Oracle server has been successfully installed and configured, and the server on which you plan to install FileNet Image Services software has been configured as an Oracle client.

Oracle Variables

Please return the following information to the System Administrator and the FileNet Technical Consultant or ValueNET Partner.

\$ORACLE_HOME: _____
(Oracle software directory) (/usr/ora/920, for example)

\$ORACLE_SID: _____
(instance identifier) (IDB, for example)

<Oracle User ID>: _____

(the Oracle administrator) (oracle, for example)

<DBA Group>: _____

(for database administration) (dba, for example)

The FileNet user **fns**w must be made a member of this group.

Tablespace Names

FileNet Recommended Tablespace Names	Tablespace Names You Actually Assign	Minimum Tablespace Size (MB)	Tablespace Size (MB) You Actually Create
fnsys_ts		200	
fntmp_ts		400	

Continue the Image Services Installation

After the Oracle software has been successfully installed, the FileNet Technical Consultant or ValueNet Partner can continue with the Image Services installation in Chapter 3, “Installing the FileNet Image Services Software.” of the *Image Services Installation and Configuration Procedures* for your platform.

Update Guidelines for UNIX Servers

The **Database Administrator** will update the Oracle RDBMS software and datasets. Because the Image Services software requires certain Oracle products be installed, the DBA needs to follow these guidelines.

This chapter covers updating both local and remote database configurations.

Operating System Considerations

Be sure to check with the System Administrator to make sure the server's operating system has been updated to the appropriate version and that the most recent patch sets, if any, have been installed.

Verify Operating System Patches

After installing the appropriate operating system software, go to the FileNet Web site <http://www.css.filenet.com> and log into Customer Service & Support. Click on:

Product Tech Info
Image Manager
Image Services
Compatibility & Dependency
IS 4.0.x

Select your operating system from the list, and review the patch recommendations and requirements.

Create Symbolic Links (HP-UX 11i v1 PA-RISC Only)

Due to a known HP bug (Doc. id: KBRC00003627), the default HP-UX 11i v1 (64-bit) operating system installation does not create a few required X library symbolic links. These links must be created manually before starting Oracle9i installation.

As **root** user, enter the following commands to create the required links:

```
cd /usr/lib
ln -s /usr/lib/libX11.3 libX11.sl
ln -s /usr/lib/libXIE.2 libXIE.sl
ln -s /usr/lib/libXext.3 libXext.sl
ln -s /usr/lib/libXhp11.3 libXhp11.sl
ln -s /usr/lib/libXi.3 libXi.sl
ln -s /usr/lib/libXm.4 libXm.sl
ln -s /usr/lib/libXp.2 libXp.sl
ln -s /usr/lib/libXt.3 libXt.sl
ln -s /usr/lib/libXtst.2 libXtst.sl
```

Turn Off Archive Logging (if necessary)

If Archive Logging is active on the server, you may wish to turn it off before updating the Oracle software.

Turning off Archive Logging will prevent non-essential records from being written to the log file and will accelerate the update.

Install Oracle9i Software

Refer to the Oracle documentation and the OracleMetalink information (for registered users) on Oracle's Web site for complete information.

- To install Oracle9i **Server software** on a FileNet Image Services server or an independent (remote) Oracle server accessed by

FileNet Image Services, continue with the next section, [“Oracle Server” on page 49](#).

- To Install Oracle9i **Client software** on a FileNet Image Services server, skip to the section, [“Oracle Client” on page 52](#).

Oracle Server

- 1 As the Oracle user, make sure the first Oracle9i CD-ROM is loaded, and launch the Oracle Universal Installer.
- 2 Make sure that, at the very least, the Oracle products checked below are installed.

Tip Each listed item has an associated icon and checkbox. An icon with a plus sign indicates there are additional subordinate items. You can list those additional items by clicking on the icon.

Placing a **check** in the checkbox indicates that you have selected the item for installation. Products that are **not checked** in the list below are not required by FileNet Image Services.

For example, if you're installing Oracle Enterprise software, the following products should be selected:

- ✓ Oracle 9i Database 9.2.0.1.0
 - ✓ Oracle 9i 9.2.0.1.0

- Enterprise Edition Options 9.2.0.1.0
 - Oracle Advanced Security 9.2.0.0.0
 - Oracle Partitioning 9.2.0.1.0
 - Oracle Spatial 9.2.0.1.0
 - Legato Networker Single Server 6.1.0.0.0
 - Oracle Label Security 9.2.0.1.0

Oracle OLAP 9.2.0.1.0

Oracle Data Mining 9.2.0.1.0

- ✓ Oracle Net Services 9.2.0.1.0
- ✓ Oracle Net Listener 9.2.0.1.0
- Oracle Connection Manager 9.2.0.1.0
- Oracle Names 9.2.0.1.0

Oracle Enterprise Manager Products 9.2.0.1.0

- ✓ Oracle9i Development Kit 9.2.0.1.0
 - Oracle C++ Call Interface 9.2.0.1.0
- ✓ Oracle Call Interface (OCI) 9.2.0.1.0
 - Oracle Programmer 9.2.0.1.0
 - Oracle XML Developer's Kit 9.2.0.0.0
 - (To remove the check from the Oracle XML Developer's Kit option, you need to remove the check from the Oracle HTTP Server option first.)

Oracle9i for UNIX Documentation 9.2.0.1.0

Oracle HTTP Server 9.2.0.1.0

Oracle Transparent Gateways 9.2.0.1.0

iSQL*Plus 9.2.0.1.0

Oracle JDBC/OCI Interfaces 9.2.0.1.0

Run SQL Scripts

After you have installed the Oracle9i software, you need to run one of the following Oracle data dictionary creation scripts as the Oracle Administrator user.

If you're updating from Oracle 8.0.6 on HP-UX or Solaris, enter:

```
SQL> @$ORACLE_HOME/rdbms/admin/u0800060.sql
```

If you're updating from Oracle 8.1.7 on AIX, HP-UX, or Solaris, enter:

```
SQL> @$ORACLE_HOME/rdbms/admin/u0801070.sql
```

where the \$ORACLE_HOME directory is the location of the Oracle RDBMS software.

Note The u0800060.sql and u0801070.sql scripts automatically run the appropriate catalog.sql and catproc.sql scripts.

Install the Appropriate Patch Set and Interim Patch

After you've installed the base Oracle 9.2.0.x software, you need to install:

- Oracle Patch Set 4 (9.2.0.4) or later

The patch sets are available for download from the Oracle MetaLink Web site.

Set Shlib_Path (HP-UX Only)

Because Image Services is a 32-bit application, it needs to use Oracle's 32-bit libraries. For each Image Services user, set:

```
SHLIB_PATH = $ORACLE_HOME/lib32
```

Turn On Archive Logging (if necessary)

If you turned off Archive Logging on the database server before updating the Oracle software, you may wish to turn it on again now.

When the Oracle 9i Server software has been installed successfully, skip to the section, [“Report to Sys Admin and FileNet TC” on page 53.](#)

Oracle Client

- 1 As the Oracle user, make sure the first Oracle9i CD-ROM is loaded, and launch the Oracle Universal Installer.
- 2 Make sure that, at the very least, the Oracle products checked off on the list below are installed. Products that are **not checked** in the list below are not required by FileNet Image Services.
 - ✓ Oracle 9i Client 9.2.0.1.0
 - Oracle Enterprise Manager Products 9.2.0.1.0
 - Enterprise Manager Client 9.2.0.1.0
 - Oracle Change Management Pack
 - Oracle Diagnostics Pack 9.2.0.1.0
 - Oracle Tuning Pack 9.2.0.1.0
 - Oracle Management Pack for Oracle Applications 9.2.0.1.0
 - Oracle Management Pack for Oracle Standard Edition 9.2.0.1.0
 - ✓ Oracle Network Utilities 9.2.0.1.0
 - ✓ Oracle Database Utilities 9.2.0.1.0
 - ✓ SQL*Plus 9.2.0.1.0
 - Oracle JDBC/OCI Interfaces 9.2.0.1.0
 - Oracle Internet Directory Client 9.2.0.1.0
 - Oracle Programmer 9.2.0.1.0
 - Oracle XML Developers Kit 9.2.0.1.0
 - Oracle9i for UNIX Documentation 9.2.0.1.0
 - ✓ Oracle Universal Installer 2.2.0.12.0
 - Oracle Advanced Security 9.2.0.1.0

After selecting the products, click **Next**.

- 3 Respond to the subsequent prompts as appropriate for your site.
- 4 When the software installation is complete, the Software Asset Manager redisplay. If all of the selected products appear as installed in the correct \$ORACLE_HOME directory and no errors display, click **Exit**.

Note Oracle Patch Set 4 (9.2.0.4) is **not required** with Oracle Client.

Copy the tnsnames.ora File

After you've installed the Oracle9i Client software, copy the tnsnames.ora file from its old location to the new \$ORACLE_HOME/network/admin directory.

Report to Sys Admin and FileNet TC

Please return the following information to the System Administrator and the FileNet Technical Consultant or ValueNET Partner.

\$ORACLE_SID: _____
(instance identifier) (IDB, for example)

Name of DBA Group: _____
(for database administration) (dba, for example)

Continue the Image Services Update

After the Oracle software has been successfully installed, the FileNet Technical Consultant or ValueNet Partner can continue with the Image Services Update in *Chapter 3, "Resolving Wizard System Check Prerequisites"* of the ***Image Services Update Procedure for HP-UX***.

Appendix A – Defining Additional RDB Objects

A brand new Image Services system has a basic set of default objects. Defining additional RDB objects allows you to customize the data layout of your relational database. The object name, in conjunction with the location, tells the Image Services software where in the database that object (or group of objects) is to be created.

An object can be a table like doctaba, a retrieval key (rdb index) like f_docnumber, or a whole group of objects like everything created from WFL, queues, workspaces, etc. The scope of the RDB object depends on how the RDB object name is formatted or built.

It's very important to build the object name string correctly. When the Image Services software is directed to create an RDB object (WFL queue, table, etc.), it dynamically builds a string that must exactly match the one that is defined in the object name column. The Image Services software searches the configuration database for a matching RDB_Object to find the location of the object. If it's not found, the search continues for the location of the parent object.

RDB Object Name Basic Syntax

The object name is a multi-part character string, separated by periods. Its maximum length is 255 characters plus a null terminator. The object name is built in a hierarchy where all names begin with fn_data. For example:

Object name format:

```
fn_data[.services_name[.subname1[.subname2[.subname3] ] ] ]
```

fn_data.services_name.subname1.subname2 is the parent of .subname3

fn_data.services_name.subname1 is the parent of .subname2

fn_data.services_name is the parent of .subname1

Note Not all services support all the subnames. See the following examples.

Index Services Example

To have the Image Services software create all index services tables and indexes in a specific location in your database, define an RDB Object using the following name:

fn_data.INXdb

Then, to have the Image Services software create doctaba in its own location, define the object name as:

fn_data.INXdb.doctaba

To have the Image Services software create a specific index (retrieval key) in its own location, define the object name as one of the following examples:

fn_data.INXdb.doctaba.f_docnumber

fn_data.INXdb.table_name.index_name

WFL Services Example

To have the Image Services software create all WQS Database Objects in one location, you would define an RDB Object with the following object name:

fn_data.WFLdb

Then, to create an index (retrieval key) of a queue in its own location, you would enter:

fn_data.WFLdb.Workspace_name.queue_name.index_name

VW Services Example

The object name is composed of the following values:

For VW queues:

For indexes:

fn_data.vw.region<region#>.server<server#>.queue.<logical_queue_table_name>.<logical_index_name>

For base data sets:

fn_data.vw.region<region#>.server<server#>.queue.<logical_queue_table_name>

For VW rosters (indexes and base data set):

For indexes:

fn_data.vw.region<region#>.server<server#>.roster.DefaultWCTable.<logical_index_name>

For base data sets:

fn_data.vw.region<region#>.server<server#>.roster.DefaultWCTable

For all other VW tables:

For indexes

fn_data.vw.region<region#>.server<server#>.table.<table_name>.<index_name>

For base data sets:

fn_data.vw.region<region#>.server<server#>.table.<table_name>

Key

In the previous examples:

<region#> is the isolated region number

<server#> is the VW server number.

<logical_queue_table_name> is the name of the table for the queue as specified in Composer.

<table_name> is the actual table name.

<index_name> is the actual index name.
